



Walter Faxon.

SENATE.....

.....No. 75.

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# ANNUAL REPORT

OF THE

## TRUSTEES

OF THE

# MUSEUM OF COMPARATIVE ZOOLOGY,

AT HARVARD COLLEGE, IN CAMBRIDGE:

TOGETHER WITH THE

## REPORT OF THE COMMITTEE ON THE MUSEUM,

FOR.

# 1874.

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# Commonwealth of Massachusetts.

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BOSTON, March 5, 1875.

To the Honorable GEORGE B. LORING, *President of the Senate.*

SIR:—The Trustees of the Museum of Comparative Zoölogy have the honor to present to the Legislature the Report of the Committee on the Museum for the past year, marked [A].

After the death of the Director of the Museum, Professor Agassiz, it was found expedient by the Trustees and by the President and Fellows of Harvard College, to alter the articles of agreement between the two corporations. A copy of the articles of agreement, as amended, and of those of the original articles which were rescinded by concurrent vote of the two corporations, will be found in the paper marked [B].

The paper marked [C] contains a list of the present Trustees, officers and committees.

Respectfully submitted for the Trustees,

MARTIN BRIMMER, *Secretary.*

[ A. ]

## REPORT OF THE COMMITTEE OF THE TRUSTEES

ON THE

## MUSEUM OF COMPARATIVE ZOÖLOGY,

FOR THE YEAR 1874.

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It has been found necessary, notwithstanding the generous response of the friends of the Museum to the Agassiz Memorial Fund, to curtail, for the present, very materially, the operations of the Museum. It was with great regret that the Curator found himself compelled, by circumstances beyond his control, to dispense with the services of many valuable assistants. The amount of work accomplished is, of course, lessened in comparison, and the field of activity considerably diminished, as will be seen by the accompanying special reports of the assistants in charge of the different departments. The volunteer work accomplished has been, as formerly, very great, and the Museum is deeply indebted to Mr. L. F. Pourtales, to Baron Osten-Sacken, and to Thomas G. Cary for the supervisions they have taken of their departments. Mr. Pourtales having been appointed by the Faculty of the Museum keeper of the collections, it is mainly due to him and to the Superintendent, Mr. Cary, that the executive details of the Museum have been carried on. Baron Osten-Sacken, to whom the Museum owes the accession of an invaluable collection of diptera, has very generously increased the scientific value of this collection by spending the greater part of one year in identifying the materials already in the Museum collection. This collection of diptera will be hereafter still more valuable, as it will eventually include the whole collec-

tion of Dr. Loew, of Guben, which has now become the property of the Museum, and contains the best collection of American diptera in existence. The biological collection of insects has also been increased by the purchase of a very large collection of Dr. Rosenhauer, of Erlangen. The late Mr. Crotch was engaged for a part of the past year on the collection of coleoptera; important accessions had been secured from his Californian collections, but his death has deprived the Museum of this material.

The alcoholic collections were never in as good a condition, nor as accessible, as at the present moment. The storage in copper cans, commenced three years ago, is now completed, and, from experience, it is evident that nothing, in the end, will stand the test of time as well for the preservation of bulky alcoholic collections as copper cans with metallic screw tops. Thanks to the happy suggestion of D. F. Becker, a very important progress has been made in ultimately securing the safety of the insect biological collections kept in small glass vials, to which reference is made in Dr. Hagen's report.

Mr. Garman has very successfully adopted the card system, in use in libraries, for the purpose of showing the geographical range, and the material on hand of each species. These cards of species advantageously replace the faunal and systematic sheets introduced by Professor Agassiz, which, like all fixed sheets, were not capable of indefinite expansion.

The publications of the past year were limited to the issue of Part IV. of the Revision of the Echini, by Alex. Agassiz, and the first part of the Scientific Results of the Hassler Expedition, by Messrs. Agassiz and Pourtales. Considerable progress has also been made to the preparation of the plates for a first part of the catalogue of the Agassiz Collection of Fishes, by Mr. Putnam.

The Museum has made provisions for the room needed by the College for the instruction in zoölogy and geology. The instruction in zoölogy has been for the past year in charge of Professor McCrady, assisted by Mr. Walter Faxon in the laboratory work. The advanced students have worked at the Museum under Professor McCrady's charge.

The present term the instruction in geology has been

resumed by Professor Shaler, for whom a convenient work-room and laboratory have been fitted up in the Museum. The calls upon the Museum to furnish facilities for teaching, by the college, both to undergraduates and special students, have been very urgent, and show how far behind the requirements of the Professors the facilities at the disposal of the Curator are, both in the way of room and of material, models, diagrams and apparatus generally. The deficiencies for more advanced students are still greater, and are especially marked with the present reduced staff of the Museum assistants. It is hoped, however, that by making use of the assistants, for instruction in the different departments, that the difficulty will be removed to a certain extent.

It was deemed advisable by the trustees of the Museum and the corporation of the college, to simplify somewhat the organization of the Museum. The office of Director was consequently abolished, and the trustees are now represented in the care of the Museum, and its property by the Museum Committee. A copy of the amendments to the original articles of agreement is added to this Report. To Messrs. N. Thayer and Geo. B. Emerson, the Museum is deeply indebted for assistance, generously tendered in times of need.

For the Museum Committee,

ALEXANDER AGASSIZ.  
THEODORE LYMAN.

CAMBRIDGE, January, 1875.

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The details of the business of the Museum will be found in the accompanying reports of the various departments.

*Report on the Mammals and Birds, by J. A. ALLEN.*

Since the report of last year the large exhibition-room has been finished, and the cases of the lower part filled with mammals and birds, the collection embracing not only stuffed skins, but mounted skeletons and fossils, arranged together in as nearly a systematic order as their size and the limitations of the cases will allow. Much of this material has not before been on exhibition. The stands of the specimens previously on exhibition have been repainted, and the whole uniformly labelled with neatly printed labels. The room proved much too small for the material that had accumulated for exhibition, and the floor cases in the north rooms of the older part of the building have been used to temporarily shelter the specimens that could not be arranged in the large room from dust, and protect them from the attacks of insects,—necessarily at the expense, however, of breaking in somewhat upon the systematic arrangement of the collections.

In addition to the work on the exhibition collection, the bones of the recent mammalia have been wholly catalogued, marked, labelled and systematically arranged, so that this material is now not only readily accessible but safe for use, as it has not been heretofore. While mixtures, and, to some extent, loss of labels, have occurred from the frequent removals to which the collection has been subject, it has in most cases been possible to repair these defects. This collection already numbers nearly two thousand specimens, a large proportion of which are skeletons. In the registering and marking of this material, very great assistance has been kindly rendered by Mr. Ed. A. Birge.

The additions during the year to either the mammals or birds have been, for obvious reasons, much fewer than usual, as shown by the subjoined schedules. Mr. Ward, of Rochester, has returned a considerable number of pieces sent him in former years, prepared with the usual skill and neatness that characterize his work. The collections received from the Smithsonian Institution are the only ones worthy of special mention, these consisting of the first dupli-series of the North American *Sciuridæ* and *Leporidæ*, and nests and eggs of North American birds. The former have special value as

being types from a recent critical revision of these families. Through the same institution we have also received a first series of duplicates of the mammals and birds, collected by the writer, on the Yellowstone Expedition of 1873, as per previous agreement.

#### ADDITIONS TO THE DEPARTMENT OF MAMMALS.

##### *By Donation.*

BACHELDER, C. E. (Harvard, '73), skeleton of *Arctomys monax*, from North Hampton, N. H.

CARLETON, M. M., 10 skins, 2 species; 18 specimens, 6 species, in alcohol, from Umbala, Northern India.

GARMAN, S. W., 1 *Blarina brevicauda*, from Cambridge.

PIKE, NICOLAS, U. S. Consul, Mauritius, 3 teeth of a cetacean.

RAWSON, Gov. R. W., 1 *Agouti*, in alcohol, from the Barbadoes.

SANBORN, F. G., 1 *Didelphys Virginiana*, from Smoky Creek, Carter County, Ky.

YELLOWSTONE EXPEDITION of 1873 (through the Smithsonian Institution), 8 skins, 7 species, from Dakota and Montana.

##### *By Exchange.*

LINDEN, CHARLES, 22 specimens, 7 species, mostly in alcohol, from Santarem, Brazil.

SMITHSONIAN INSTITUTION, 206 skins, about 40 species and varieties, and 24 skulls, 20 species, of North American *Sciuridæ*; 50 skins, 13 species and varieties, of North American *Leporidae*.

VIENNA MUSEUM, 4 mounted skeletons and several skulls.

##### *By Purchase.*

2 skeletons and 7 skulls, 7 species, from Sweden.

#### ADDITIONS TO THE DEPARTMENT OF BIRDS.

##### *By Donation.*

CARLETON, M. M., 4 skins, 1 specimen in alcohol, a few eggs and young birds in alcohol, and 24 nests, from Umbala, Northern India.

MOUNT AUBURN CEMETERY CORPORATION, 1 swan, in flesh.

PINHERO, Dr., 59 skins of humming-birds, 13 species, from Brazil.

YELLOWSTONE EXPEDITION of 1873 (through Smithsonian Institution), 122 skins, 54 species, and several sets of nests and eggs.

JACKSON, Dr. J. B. S., preparation of sternum and trachea of swan.

*By Exchange.*

LINDEN, CHARLES, 3 young birds and eggs, in alcohol, from Santarem, Brazil.

SMITHSONIAN INSTITUTION, 63 nests, 58 species, 117 eggs, 50 species, of North American birds; 4 skins of *Leucosticte griseinucha*, from St. George's Island, Alaska.

VIENNA MUSEUM, 1 mounted skeleton of *Aquila*.

*By Purchase.*

95 skins and 34 skulls, from Sweden.

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*Report on the Department of Conchology, by JOHN G. ANTHONY.*

My last report, which was made in January last, brought the business of my department up to the close of last year, and, consequently, leaves but the doings and changes of ten months to note at the present time.

Since then the usual outline has been observed. The Pease collection of shells, which at the close of the year had only just come into our possession, and had been but partially examined, and the species identified, has since demanded and received our almost undivided attention, and as we found it absolutely necessary to couple with it the entire revision of all our previous collection, has proved a long and most laborious undertaking. We have endeavored to do this in the most critical and thorough manner, sparing no pains to make the revision as perfect as possible, and have the satisfaction of believing that this has been so thoroughly done that no further labor in this direction will be required for many years. In all this work I have had the benefit of the valuable coöperation of my assistant, Professor Hamlin, who has been indefatigable in his efforts to aid me in every way possible.

The mounting of specimens for the purpose of properly presenting them to the view of visitors, and especially of students of this branch of natural history, has been steadily carried on during the year by my daughter, who is my only assistant for that purpose, and much progress has been made in that direction. And the large additions made to our collection from the Pease collection, and those received by exchanges,

which have from time to time been incorporated with those previously on hand in order to introduce those from new localities, or better specimens has rendered the requisite mounting of these specimens a task of no small magnitude.

The collections which were mentioned in the last report as having been prepared for the use of the normal schools in the State, have since been forwarded to each school, and, we trust, may be the means of extensive usefulness.

Our exchanges during the present year have been about as numerous as usual, and having been mainly restricted to such species as were really needed to increase our own collection, have resulted in our receiving fewer duplicates than usual, but still enough to keep up our stock for such purposes and to furnish our large and increasing list of correspondents with all that they require at our hands. We have received from all sources, in this way, during the current year, 27 boxes of shells, containing 1,477 species and 20,721 specimens; and among the specimens received have been some of rare beauty and excellence.

Our generous and constant contributor, the late U. S. consul at Mauritius, Hon. Nicolas Pike, has laid us under special obligation this year, as in former ones, by his kindness in sending valuable and interesting shells.

From Dr. Henry Dohrn we have to acknowledge several favors, and although his contributions have not been so numerous in specimens as many others, yet they have embraced some of the rarest and most interesting species and specimens we have ever received. Among these, we cannot omit mentioning a few which have been welcomed with peculiar pleasure,—such species as *Helix Cambodiensis*, *Euptychia equivoca* and *Halia priamus* are seldom seen anywhere, and during fifty years which it has been my lot to study conchology, I have never found the last named in any collection.

Mr. Geale, Mr. Owen, Governor Rawson, and other friends, have proved not less mindful of us, and we cheerfully and cordially thank them for aiding so liberally in building up our collection.

Among the various objects which have received attention during the present year, our catalogue has not been

forgotten, and, I am happy to say that it is in a good state of progress, about one-third of our species having been critically reexamined and carefully identified by all the means in our possession, and arranged after an improved method for registry in a book which has long been waiting for the purpose. We still, however, need several books for the proper identification of species, and hope that before another year is completed we may rejoice in the possession of more ample means of conchological identification.

During the year we have packed and sent away 32 boxes, containing 3,890 species and 21,109 specimens. As evincing our ability to furnish our correspondents with species called for, I may mention that to one person we sent 900 species of terrestrial and marine shells alone, the recipient having expressly excluded fluviatile species altogether, and also species from Europe, India or Australia, so that our range of duplicates may fairly be set down as not less than 1,400 or 1,500 species.

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*Report on the Alcoholic Mollusca, by J. HENRY BLAKE.*

During the past year not much has been done with this collection besides continuing the systematic arrangement, keeping everything in a safe condition. Although the arrangement for convenience, begun last year, is not fully completed, the collection is nevertheless in a condition easily accessible.

Many of the specimens contained in jars with cork stoppers were changed to glass-stoppered jars.

The many collections of mixed specimens which have remained in this condition for a long time, have been assorted, with a few exceptions, and the species properly labelled.

Donations for the year are:—

Mr. HENRY HEMPHILL, a collection from San Diego.

Dr. M. H. JAMES, 306 species from Honolulu.

Mr. J. BALL, 17 specimens from Texas.

Capt. P. C. JOHNSON, U. S. N., 150 specimens, California.

Dr. HENRY STANLEY PITKIN, U. S. N., 1 *octopus*, Honolulu, S. I.

Mr. CHARLES LINDEN, 6 specimens, Brazil.

ANDERSON SCHOOL, specimens from Penikese Island.

Mr. S. L. LANSBURGH, 25 specimens from La Paz, Mexico, collected by Capt. W. Clark.

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*Report on the Articulates, by Dr. H. A. HAGEN.*

The following material has been received:—

1. From Mr. S. H. SCUDDER, *Acanthaclisis Americana*, hitherto the only specimen known to me.
2. From Mr. HENRY L. MOODY, from Malden, Mass., living Boreus.
3. From Mr. H. J. HUBBARD, a large lot of specimens for the biological collection, raised by him, and arranged in two of the Museum's boxes.
4. From Mr. B. P. MANN, 12 species of Diptera.
5. From Mr. W. P. AUSTIN, Diptera and Hymenoptera.
6. From Dr. H. A. HAGEN, insects of all orders, from Andover, Me.; from Manchester, Mass.; from West Point, N. Y.; and White Mountains.
7. From Count POURTALES, specimens for the biological collection.
8. From Mr. F. G. SANBORN, a very large lot of insects of all orders, from Kentucky.
9. From the Baron OSTEN-SACKEN, a large number of insects from the Catskills, N. Y., and Alexandria, St. Lawrence River, and from the White Mountains.
10. Duplicates of Neuroptera and Diptera, from the expedition of Prof. HAYDEN. in Colorado, Lieut. WHEELER, in Colorado, Dr. COUES, in Dakota.

The extensive biological collection bought from Prof. Rosenhauer, in Erlangen, was sent to Stettin, July 27, but is not yet arrived.

Since my last report, Mr. Schwarz arranged the Lamellicornia, Buprestidæ and Elateridæ, and the Coleoptera from Cordova, Argentine Republic, and Mr. Hubbard other parts of the Coleoptera. On the first of May both left the Museum. Baron Osten-Sacken has taken, as before, care of the Diptera, and delivered a separate report. Miss Clark worked the whole time in spreading butterflies and labelling insects.

I myself arranged the collection of European Lepidoptera, those of the United States, of the Himalaya and the general collection of the Rhopalocera, filling 26 cabinets. By the new arrangement of the exhibition rooms the insect cabinets, formerly scattered in all of the rooms, are transferred to a separate room.

The Neuroptera sent by the different United States expeditions mentioned before, are determined, and the reports delivered to the parties, to be published. Unfortunately the insects were nearly all in a condition unfit for a scientific collection.

The second part of the Lepidoptera from Texas in the collection, was published by Prof. Zeller. A large part of the Noctuidæ of the United States are identified and named by A. R. Grote, from Buffalo, N. Y., and the California Phalænidæ by Mr. A. S. Packard.

Several lots of duplicates of Lepidoptera were sent in exchange for North American species that were wanting in the collection.

Perhaps an interesting and important fact may be mentioned here. The alcoholic vials of the biological collection were a year ago all newly arranged with rubber stoppers, the cork stoppers not doing well here owing to the great changes of temperature. The whole collection is now perfectly safe. The corking of the vials was made in a peculiar way, suggested by Mr. D. F. Becker. In putting the stopper in the vial a fine insect-pin is introduced (to be removed later), allowing the air to escape, and preventing at the same time a strong compression of the alcohol. Formerly the compression of the alcohol was a principal cause for the want of safety of the filled vials.

A small test-vial, filled in this way a year ago, was kept purposely the whole year in the sunshine; the length of an air-bubble retained in the vial was measured carefully in millimetres, and shows now about the same length as a year ago. In summer the bubble was even much smaller, owing to the greater expansion of the alcohol, proving at the same time the close fitting of the stopper.

*Report on the present condition of the Collection of Diptera of the Museum of Comparative Zoölogy, by C. R. OSTEN-SACKEN.*

The collection consists of three groups: 1, North American diptera; 2, European diptera; 3, diptera which are neither European nor North American, and which I will call exotic.

*I. Collection of North American Diptera.*—Under North America, I understand the whole continent north of the Isthmus of Panama. The large majority of the diptera of the collection, however, are from the region north of Mexico and east of the Rocky Mountains. The Californian diptera are confined to a small number, sent by Mr. H. Edwards and Mr. W. Holden, or brought home by Mr. A. Agassiz. The Mexican diptera are represented by some forty species from my collection; the West Indian by the small collections made by P. R. Uhler in Hayti, and by Mr. Ch. Wright in Cuba, and also by specimens derived from my own collection.

The bulk of the scattered materials which I found in the Museum, consisted of a considerable number of specimens from Massachusetts, and principally from the immediate vicinity of Boston, collected by Mr. Uhler, and also contributed by other parties; collections from more distant localities were obtained from Mr. S. H. Scudder (White Mountains and British Possessions); S. I. Smith (Norway, Maine); A. S. Packard (Maine, Labrador); A. E. Verrill (Anticosti); J. A. Allen (Iowa, Illinois); J. Boll (Texas); A. Agassiz (Lake Superior). There were also some remains of the Melsheimer and Ziegler collections.

In pursuance of my intention to present my collection of diptera to the Museum, my work last winter consisted in incorporating the above-described materials with my collection; in naming, as far as possible, the unnamed specimens; in labelling and classifying the whole, and putting up a general collection in the cabinets reserved for that purpose. The collection of North American diptera thus formed is now arranged in three cabinets of eighteen drawers each. All the families are classified, with the exception of the group *Muscidæ calypteræ*. The sum total of the named species is very

nearly one thousand (the number of undetermined species cannot be estimated with any degree of probability).

For the sake of comparison, I will state that the total number of the described species of diptera from North America, *north of Mexico*, is about 2,500; the number of those from Mexico, Central America and the West Indies is about 800.

It is important, at this place, to define exactly the degree of reliance which can be placed in the determinations of the collection. In this respect the thousand named species of the Museum collection can be referred to the following four classes:—

1. In the course of my correspondence with Dr. Loew, for many years, a considerable number of specimens were returned by him to me with labels in his handwriting. Most of such specimens are, therefore, if not the original types of his descriptions, at least may be called *author's types*. All labels of this description are preserved in the collection.

2. A still more considerable class of specimens are numbered duplicates, which I kept, while sending to Dr. Loew the identical species, labelled with the same numbers. After describing such species, Mr. Loew used to send me the name, with the number attached. Species thus named are almost as good as authors' types, the rare but not impossible cases excepted, where I may have been mistaken as to the identity of the specimens sent with those retained under the same number. This class of species,—there are some four hundred of them,—generally represented by a number of well-preserved specimens, are a very valuable, perhaps the most valuable, portion of the collection (especially in the difficult families of *Empidæ*, *Tachydromidæ*, etc.).

3. The original types of my own descriptions, embracing the whole family *Tipulidæ brevipalpi* and a small number of other species (about 160 types in all).

4. Species identified by me from the existing descriptions. The credit which these identifications deserve depends, of course, on the merit of the descriptions and the difficulties inherent to the identified subject.

It results from the foregoing statement that, for a considerable majority of the named species, the standard of trustworthiness of the identification is a very high one.

During my work of last winter, I was enabled to make the following additions to the collection:—Mr. Comstock, from Ithaca, N. Y., and Dr. LeBaron, State Entomologist of Illinois, sent me their collections for determination, and allowed me, in return, to retain some of the rarer species. Likewise, having prepared a report on the diptera from Colorado, collected by Lieut. Carpenter (Hayden Expedition), and on those from the Polaris Expedition, collected by Dr. Bessels, I added to the Museum collection some valuable specimens, derived from these sources. Other contributions received were from Messrs. F. G. Sanborn (a number of very valuable specimens from Massachusetts, and, latterly, from Kentucky), W. P. Austin (Massachusetts), E. Burgess (*id.*), G. R. Crotch (California and British Possessions west of the Rocky Mountains), B. P. Mann (Tabanidæ from South Carolina), C. E. Webster, Binghamton, N. Y. (metamorphosis of *Microdon trisbis* and *Trypeta solidaginis*), E. Palmer (Tabanidæ from Florida), the late Prof. J. Wyman (an apparently new Chrysops from Florida); finally, the specimens taken by me during my travels last summer, were also incorporated in the collection.

## *II. Collections of European Diptera.*—They comprise:—

1. *Types of Genera*, named by Messrs. Loew, Schiner and Gerstaeker, the three European authorities on diptera. Dr. Loew's collection contains 355 genera, 707 species and more than 1,000 specimens. Dr. Schiner's, 180 species; Dr. Gerstaeker's, about 100 species. These types are of the utmost importance to the future work on the North American diptera, at the Museum. They are in excellent preservation.
2. The collection of European diptera acquired from Dr. Imhoff, in Bale. The collection is not large, but contains rather numerous specimens of each species, which is an advantage in the comparison of American with closely allied European forms. It is in a very good state of preservation.
3. The collection of Swedish diptera, acquired from Mr. Ljungh. It is not named, but rather rich in specimens, and quite well preserved, considering its old date.

The dipterous faunæ, of Europe and North America, are so much alike, and again, in some respects, so very different,

that the study of the latter cannot be followed without a continual comparison with the former; hence the importance of the European collection in the Museum.

*III. Collection of Exotic Diptera.*—This collection is as yet very small, and consists in specimens from the East Indies (Rev. M. M. Carleton), from Japan (G. J. Gulick), Brazil (Mrs. Munroe), Australia (H. Edwards).

Besides the collections already mentioned, the Museum possesses a considerable number of diptera preserved in alcohol. From want of time, I have not been able to examine them in detail. They contain, among others, valuable collections from Zanzibar, by Mr. C. Cooke, and from Cordova, in the Argentine Republic, by Mr. W. M. Davis. Unfortunately, diptera preserved in alcohol are spoiled as specimens, and may only occasionally contribute to the knowledge of the geographical distribution of the species. For the same reason,—want of time,—I have not put in order yet, the materials for a biological collection of diptera which the Museum possesses.

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*Report on the Crustacea, by WALTER FAXON.*

When I took charge of the Crustacea of the Museum, last autumn, part of the alcoholic collection was packed in wooden trays, so as to be hardly accessible. The remainder was in kegs in the cellar, with no assortment beyond localities. The whole is now systematically arranged in the exhibition-room assigned to it, the duplicates being safely stowed in copper cans in the cellar. The large collections made during the voyage of the "Hassler" have been sorted according to species, but are kept apart from the general collection, for convenience, until the species shall be determined.

The dry collection—among which are valuable types of Dana and Le Conte—has also been overhauled and removed from its perilous place in the attic to drawers in the articulate-room.

In order to facilitate the study of the anatomy of the class, I have made and placed on exhibition a series of preparations

of the hard parts of different genera, from spider-crabs down to the horse-shoe. I was assisted in this work by Miss Cushing and Mr. Birge. I intend to add to this series dissections illustrating the internal organs. I am now working upon the fossil crustacea. A representative series will be put on exhibition, and the whole collection, it is hoped, placed in a condition of permanent safety.

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*Report on Selachians, Reptiles and Batrachians, by S. W. GARMAN.*

*Selachians.*—The anatomical work laid out by Professor Agassiz occupied the earlier portion of the year. Afterward the entire collection received new alcohol, and much of it new labels. To clear the room for the use of the college, the anatomical preparations were removed to the room occupied by the fishes; about one-fourth of the sharks and skates were placed on exhibition, and the balance, changed from the barrels and kegs, were carried to the cellar. The number of specimens identified and catalogued during the year was about five hundred. This collection fills two large tanks and thirty-nine of the larger-sized copper cans, besides a great number of jars; it is in good condition.

*Reptiles.*—The reptiles have been sorted, catalogued, provided with fresh alcohol and placed in copper. The space allotted to the reptilia, in the exhibition-rooms, has been filled. In addition to the regular Museum catalogue, a second has been made on cards, similar to those in use in the libraries, for the identified specimens of each of the selachians, reptiles and batrachians, by means of which the geographical distribution, the genera of the family or species of the genus represented in the collection, the whole number of specimens and the position in the Museum can be readily ascertained.

Donations have been received from Col. Beddome, Rev. M. M. Carleton, Prof. Heller, Prof. Shaler, Mr. Whorf and others.

About thirty-three hundred articles were catalogued; with few exceptions, in good order.

*Batrachians.*—More than three thousand have been cata-

logged. It has taken much time and no little labor to attach numbers or labels to each of the majority of examples in these collections; but by so doing time will be saved, confusion avoided, and the value of the representations increased hereafter. Batrachians and reptiles together occupy forty-three of the larger cans, twenty-nine of the smaller, and a very large number of jars.

The alcohol was changed; as catalogued, the specimens were removed from the jars to the cans; by far the greater portion in excellent condition.

There is much material for exchanges.

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*Report on the Fishes, by RICHARD BLISS, Jr.*

During the present year all the specimens in glass jars, with the exception of those needed for immediate work, have been removed from the cellar, workroom and old exhibition-rooms to the storeroom in the second story, where they have been arranged by families, as far as possible, on temporary shelves.

An examination of the specimens placed in copper cans a year ago, gives the most gratifying results, as by this method the loss of alcohol from evaporation is entirely prevented.

One of the cases in the gallery of the large exhibition-room has been filled with specimens pertaining to the systematic collection. As soon as possible, the other cases in the gallery will be occupied by the fossil, faunal and the rest of the systematic collections.

The work of identifying and cataloguing the large collection of Mauritian fishes is nearly completed. This collection now embraces upwards of two hundred and seventy-five species in alcohol, and many stuffed skins.

Dr. Klunzinger's collection, embracing one hundred and sixty species from the Red Sea, has been catalogued and prepared for exhibition.

The following additions have been made to this department during the year:—

*By Donation.*

PIKE, Hon. NICOLAS, 50 species, 150 specimens, from the Mauritius.

CARLETON, Rev. M. M., a collection from the Jumna Basin, and another from near the Thur Desert, Northern India.

PITKIN, Dr. H. S., a collection from Panama.

JONES, Dr. W. H., a collection from Honolulu, S. I.

WHERRY, Rev. E. M., through Mr. Carleton, a collection from Loodianah, India.

BABCOCK, A. L., 9 species, 12 specimens, from British Guiana, S. A.

SANBORN, F. G., a collection from Carter County, Ky.

EDWARDS, H., 1 *Pomacentrus rectifraenum*, from Mazatlan, Mexico.

MURDOCH, J., 1 *Micropterus nigricans*, from Plymouth, Mass.

ASH, C. E., 1 *Monacanthus cuspicauda*, from Newport, R. I.

GARMAN, S. W., 1 *Monacanthus cuspicauda*, from Gay Head, Mass.

*By Exchange.*

HELLER, Prof., Innsbruck, a collection from the Adriatic Sea.

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*Report on Radiata, by L. F. POURTALES.*

During the past year, the Corals in the exhibition-room destined to the Radiates, were arranged so as to present a systematic collection, comprising both fossil and living representatives. It has required considerable labor in selecting the specimens from the large store of duplicates, mounting them (slate tablets have been used with advantage for the purpose), revising their names or determining those which were new to the collection, and arranging them to the best advantage in the cases. At the end of the year, all but the Rugosa and Milleporidæ had been thus arranged, occupying more than three sides of the lower part of the room. Although the families having the closest affinities have been kept together as much as possible, a slight departure from the general plan has been, in some cases, unavoidable, on account of the necessity of exhibiting families of which the representatives are mostly small and delicate, in a better light than is necessary for those of large size. It is proposed to

place ultimately explanatory notices in the room as a guide to students. The duplicates have been partly sorted; a liberal portion of those too unsightly for exhibition or exchange, have been set apart for use in the department of instruction. Sets representing the principal families have been distributed to the normal schools of the State, to be used in connection with similar sets from the other departments of the Museum, in illustrating the lectures on natural history.

In this work I have been greatly assisted by Miss Hyde, who has mounted and arranged a large number of specimens, and made a card catalogue of those on exhibition.

The systematic collection of *Ophiuridæ* and *Astrophytidæ* has been mounted and placed on exhibition under the direction of Mr. Lyman, who has also prepared, for publication in the Illustrated Catalogue of the Museum, the species of these families brought home by the Hassler Expedition. This number of the catalogue will contain five plates, besides figures printed in the text.

The other alcoholic Echinoderms, with the exception of the *Crinoidæ*, have been placed in the gallery of the coral-room by Mr. Birge, under the direction of Prof. McCrady. The living pedunculated *Crinoidæ* I have prepared for exhibition. The fine specimens received from Gov. Rawson, of Barbadoes, form a marked feature of this set.

The accessions to the collection of corals have not been very large during the year; a few interesting ones were received from Mr. Arango, of Havana, and some fine specimens of Floridian forms, new or imperfectly represented in our collections, purchased from Dr. Palmer.

The collection of *Alcyonarians* remains still in the hands of Dr. Kölliker, of Wurtzburg, for determination.

[B.]

## ARTICLES OF AGREEMENT

BETWEEN THE TRUSTEES OF THE MUSEUM OF COMPARATIVE ZOÖLOGY  
AND THE PRESIDENT AND FELLOWS OF HARVARD COLLEGE, AS  
AMENDED BY CONCURRENT VOTE OF THE TRUSTEES, JANUARY 28,  
1874, AND OF THE PRESIDENT AND FELLOWS, JANUARY 30, 1874.

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1. Each corporation shall retain and manage the funds now held, or which may hereafter be held by it, according to the trusts on which the same have been or may be given.
2. The property in the Museum, land, buildings, furniture and collections, present and future, shall be vested in said Trustees, in trust, to hold the same for the uses declared by these Articles of Agreement, and for such uses as may hereafter be declared, as hereinafter provided.
3. Each corporation shall retain the power to appropriate from the funds under its control such sums as it may deem expedient.
4. The duty and power of erecting buildings from funds appropriated and set apart for that purpose, and of adding to and extending the same hereafter, as funds shall be appropriated for that purpose, upon plans which shall render such buildings part of a complete and harmonious whole; and the duty of taking care of said buildings, and causing them to be kept in repair, shall devolve upon and vest in said Trustees.
5. The Committee of the Trustees on the Museum shall, by inspections from time to time, and by communications with the Faculty, assure themselves that duplicate specimens are distributed, by exchange or otherwise, among other colleges and institutions of learning, in this Commonwealth and elsewhere, so far as may be done consistently with the interests of the institution; that the Museum belonging to said Trustees shall, at all reasonable times, and under reasonable regula-

tions, be kept open to the public free of charge; and that the buildings, collections and grounds, are properly maintained.

6. The Professor of Zoölogy and Geology, in the Lawrence Scientific School of Harvard University, shall be entitled to give instruction in the Museum of Comparative Zoölogy, and shall have access to the collections for purposes of investigation, with such rights and privileges as the Faculty of the Museum may determine; and other professors or teachers, of Harvard University, may be licensed by said Faculty to give instruction at the Museum, with similar rights and privileges.

7. The Faculty of the Museum shall nominate one of its members to the Corporation of Harvard College, to be Curator of the Museum, and, if confirmed by the Corporation, such person shall become Curator; if rejected, new nominations shall be made by the Faculty to the Corporation. It shall be the duty of such Curator, under the direction and control of the Faculty of the Museum aforesaid, when funds shall have been appropriated and placed at the disposal of the said Faculty by either of the Corporations for the purpose, to make purchases of such articles as shall be necessary and suitable for the increase of said Museum in any of its departments, and to direct all necessary expenses for the transportation and other charges incident to their acquisition, and all necessary expenses for vessels and materials incident to the preservation and exhibition of such articles, and to have the entire charge and control of the classification and scientific arrangement of them.

8. Whenever it shall become necessary to employ any assistant or assistants to the Curator aforesaid, for the preparation, arrangement, classification, or scientific or educational use of the collections in the Museum, and any funds for the compensation of such assistants shall have been appropriated by either corporation, and placed at the disposal of the Faculty of the Museum for that purpose, such assistants shall be appointed and employed by the Faculty, or under their direction, in such manner as they shall prescribe.

9. It shall be the duty of the Curator, under the control and direction of the Faculty of the Museum, to fix suitable times, and also suitable places within the Museum, for persons duly authorized to give lectures and instruction therein.

10. No person officially connected with the Museum shall be permitted to make any private collection, or to trade in specimens of natural history, except for the Museum.

11. These rules and regulations, mutually agreed on and adopted by the parties, shall not be repealed or altered, except by a formal agreement between the parties, or by a concurrent vote, passed by each corporation, specifying such repeal or alteration, and entered upon the records of both said corporations.

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The original articles repealed or altered by concurrent vote of the two corporations are :—

5. The Director of the Museum of Comparative Zoölogy, an officer appointed or to be appointed by said Trustees, shall make arrangements, under the supervision of the Faculty aforesaid, for the reception of visitors either upon special or general invitation, and of the public at large, at suitable times and under suitable regulations, to visit and examine the Museum; and such arrangements shall be made with a view to secure to the public the freest enjoyment of and access to the Museum consistent with its use for scientific and educational purposes.

6. The Lawrence Professor of Zoölogy in the Scientific School of Harvard University, or the officer charged with the instruction in that department of science for the time being, shall be the Curator and scientific head of the Museum, subject to the control and regulation of the Faculty of the Museum herein before mentioned, in whom the power to determine the use of the Museum for scientific and educational purposes, either by general regulations or by specific orders, is ultimately vested; and the compensation paid to such Curator as Professor in the Lawrence Scientific School shall be regarded as full compensation for instructions given and services rendered in the Museum, until further provision is made therefor.

7. It shall be the duty of such Curator, under the like direction and control of the Faculty of the Museum aforesaid, when funds shall have been appropriated and placed at the disposal of the said Faculty by either of the corporations for the purpose, to make purchases of such articles as shall be necessary and suitable for the increase of said Museum in any of its departments, and to direct all necessary expenses for the transportation and other charges incident to their acquisition, and all necessary expenses for vessels and materials incident to the preservation and exhibition of such

articles, and to have the entire charge and control of the classification and scientific arrangement of them.

9. It shall be the duty of the Curator, under the direction and control of the Faculty of the Museum, to fix suitable times, and also suitable places within the Museum, to give lectures and instruction to regular classes of students under his care, to classes of teachers of the public schools, and to classes of pupils in the Normal Schools in the Commonwealth, and to such special classes of students and persons desirous of availing themselves of his instructions and of the advantages of the Museum, as he may receive or invite for those purposes.

11. Whenever the office of Director of the Museum established by the Trustees, and that of Curator of the Museum as herein before defined, shall be held by different persons, the Faculty of the Museum shall, subject to these articles and such other articles as may be adopted by both corporations as hereinafter provided, define the relative duties of the incumbents, and superintend their execution.

[ C. ]

TRUSTEES OF THE MUSEUM OF COMPARATIVE ZOÖLOGY,  
1875.

THE GOVERNOR OF THE COMMONWEALTH,

WILLIAM GASTON.

THE LIEUTENANT-GOVERNOR,

HORATIO G. KNIGHT.

THE PRESIDENT OF THE SENATE,

GEORGE B. LORING.

THE SPEAKER OF THE HOUSE,

JOHN E. SANFORD.

THE SECRETARY OF THE BOARD OF EDUCATION,

JOSEPH WHITE.

THE CHIEF JUSTICE OF THE SUPREME JUDICIAL COURT,

HORACE GRAY.

THEODORE LYMAN.

ALEXANDER AGASSIZ.

NATHANIEL THAYER.  
MARTIN BRIMMER.QUINCY A. SHAW.  
LOUIS F. POURTALES.OFFICERS OF THE MUSEUM OF COMPARATIVE ZOÖLOGY,  
1875.His Excellency WILLIAM GASTON, Governor of the Commonwealth, *President.*THEODORE LYMAN, *Treasurer.*MARTIN BRIMMER, *Secretary.*JOSEPH WHITE, NATHANIEL THAYER, *Committee on Finance.*ALEXANDER AGASSIZ, THEODORE LYMAN, QUINCY A. SHAW, LOUIS F. POURTALES, *Committee on the Museum.*











